

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
UTILITY PATENT APPLICATION

J1036 U.S. PTO
09/935080
08/21/01

TO WHOM IT MAY CONCERN:

5 Be it known that I, Dale DeWayne Cormican of Route 1, Box 153, Mentor, Minnesota 56736, have invented an improvement in the:

ONE PIECE MOLDED SKI APPARATUS

10 of which the following is a

BACKGROUND OF THE INVENTION:

The present invention relates to an improvement in skis used on snowmobiles or other vehicles to facilitate forward movement and steering. More specifically, to a ski which is constructed entirely from Ultra High Molecular Weight Polyethylene (UHMW), as one piece including the attachment saddle which facilitates the attachment of a ski to the front end of a typical snowmobile.

Typical snowmobiles are powered by a front mounted engine attached to a rear endless track system. The track on conventional snowmobiles is suspended using springs and gas powered shocks to absorb bumps and aid in control and handling of the snowmobile. These snowmobiles are typically supplied with two skis attached to a rider operated steering system. The skis are placed in front of the track system and are, thus, the first

COPY

part of the vehicle to meet obstacles such as rocks, logs and bumps. Different manufacturers have developed and utilized several different means of adding travel to each individual ski system. These systems range from a wishbone type suspension to 5 an upright spring and dampener type system.

The classic, or conventional, snowmobile ski is constructed of metal and attaches to the steering system mechanism at a point near the middle of the ski. These skis are typically curved upward at the forward portion which allows the ski to ride over 10 obstacles. The curved portion also aids the ski in traveling through snow conditions ranging from deep powder snow to slush and ice.

A stiff loop, made of metal rods, is typically attached to the front portion of the ski near the top of the front curved 15 section. Some skis have used a piece of angle iron or bracketing to increase the strength of the loop. This rod or loop is then attached in a circular fashion back towards the center portion of the ski. The loops have several purposes the first of which is to strengthen the ski. The loops also act as a continuation of 20 the curved portion of the ski and, thus, enhances the skis ability to handle bumps, moguls or obstacles. These loops have also evolved into handles to aid moving the snowmobile or picking up the front for a variety of reasons.

The metal ski has been standard for many years, but recently

the industry has begun adopting skis made of metal bridges, reinforcements and plastic portions. This plastic may be of a type such as a Ultra High Molecular Weight Polyethylene (UHMW) or (UHMW-PE) plastic. This type of ski has been developed to
5 overcome some of the disadvantages of the metal ski. One of these disadvantages has been that metal skis are unyielding and thus, subject to dents and bends as the ski is used in normal operation. These bends and dents eventually lead to a drop in performance of the ski and often necessitate the replacement of
10 the ski. The use of flexible and resilient plastics has resulted in skis that are durable and able to withstand impacts that would have damaged conventional metal skis. These skis, however, are made with metal bridges, saddles or supports that result in a ski resilient at its edges, and is overall rigid. The problem with a
15 ski that is overall rigid is that when the tip of the ski encounters a bump or obstacle the ski will follow this bump or move this results in the base of the ski losing contact with the ground or snow which substantially affects the rider's ability to control the vehicle as it will tend to dart from side to side as
20 the ski loses contact with the ground.

United States patent 5,040,818 issued to Metheny on August 20, 1991 and United States patent 5,145,201 issued to Metheny on September 8, 1992, a continuation in part issuing from the 818 patent generally discloses one of the current plastic and metal

skis. This ski has a formed plastic base with a metal bridge and saddle top. The front tip of the ski in one embodiment is equipped with a solid loop and upper bridge which holds the front of the ski in a curved and rigid form. In this embodiment the 5 ski is substantially rigid and thus, suffers from the same handling characteristics as the metal ski in bumps. A second embodiment of this ski uses a rigid rod of adjustable length which may be used to vary the upward curvature of the ski as the rod is lengthened or shortened. This embodiment has some flexibility 10 however, the flex tends to be behind the rod's connection point and in front of the metal saddle at one point on top of the ski. This tendency to flex at one point, as the rod is solid, results in a ski that flexes too much to the point that it is damaged or broken by severe impacts such as logs or rocks, and thus, can 15 create a dangerous situation for the rider.

Another ski of the plastic variety is shown in United States patent 5,360,220 issued to Simmons on November 1, 1994. This patent discloses a ski having a plastic curved base. The base has a flexible loop attached to the underside of the front and up 20 and over the tip of the ski to a point on the upper base of the ski near the middle. The loop is attached near the middle of the ski in a slid able fashion such that the ski may flex. This configuration works to make the ski somewhat flexible, however, as the ski is pre-curved the flex is not adjustable. The loop

acts to evenly distribute the bending and flexing of the ski over a large area. Although, this works to alleviate the problems of flex in one point, and thus, prevents breakage this design is not adjustable to a given rider's size or taste. The ski operates at 5 a preset flex within certain limits. Thus, a rider may still experience problems in bumps with darting as the ski may be too soft for a large rider and thus, flex to a point where the rear portion of the ski leaves the ground and reduces a rider's control of the sled.

From this discussion, it can be seen that it is desirable to supply a ski that works to absorb bumps during riding. It is also desirable to make this ski adjustable to riders of a given weight and different riding styles. Further, it is necessary that this ski be designed to flex evenly throughout its length so 10 that the ski will not buckle under extreme bumps such as ditches, logs and rocks.

SUMMARY OF THE INVENTION:

It is the primary objective of the present invention to provide a ski type steering mechanism for snowmobiles and other similar vehicles including small airplanes and BOMBARDIERS that 20 are made up entirely of a single piece of Ultra High Molecular Weight Polyethylene (UHMW).

It is an additional objective of the present invention to

provide such a "one piece ski" that has a flat lower surface that will tend to float on top of, rather than sinking into, snow cover regardless of whether the snow is in a packed or powder condition.

5 It is still a further objective of the present invention to provide such a "one piece ski" that has extending from the entire length of its lower surface a ninety degree which is used to provide steering and stabilizing impetus to the snowmobile to which it is attached.

10 These objectives are accomplished by the use of a flexible ski which is molded in one piece entirely of UHMW plastic. The adjustable flex ski is made up of a ski body which forms the majority of the invention and provides the base to which the other components are attached. This ski body is molded in a flat
15 configuration. The front portion of this ski is given a pre-load function by bending the forward most portion of the ski body in an upward fashion. It is then held in this position by the use of pre-load bar which extends pivotally rearward from the tip of the ski to a ski saddle located on the upper center surface of
20 the ski body. This saddle provides various attachment points for the pre-load bar and can thus, varies the amount of pre-load on the ski. The saddle is also supplied with an attachment point for mounting the ski on the vehicle. This configuration allows the tip of the adjustable flex ski to flex in an upwardly fashion

when confronting obstacles which provides the operator with a greater degree of control in rough terrain.

Therefore, when the present invention encounters and impacts an obstacle, the energy created by this impact is
5 absorbed by the flexible ski body in the pre-load area of the ski. Therefore, the impact absorption motion is confined to the movement of the components of the present invention and the ski body, which remains flat on the surface over which it is traveling. This ability to flex greatly enhances directional
10 control over the prior art as the control surfaces intended to provide directional control remain in constant contact with the ground.

For a better understanding of the present invention reference should be made to the drawings and the description in
15 which there are illustrated and described preferred embodiments of the present invention.

DESCRIPTION OF THE DRAWINGS:

Figure 1 is a perspective view of the present invention
20 showing the manner in which its major components relate to one another to comprise the invention.

Figure 2 is a top elevation view of the present invention showing the orientation of its major components in relation to the body of the ski.

Figure 3 is a side elevation view of the present invention showing the orientation of its major components in relation to the body of the ski.

5 Figure 4 is a bottom elevation view of the present invention showing the location of the 90 degree keel and the ski as configured only with the center carbide.

Figure 5 is a front elevation view of the present invention showing the orientation of the 90 degree keel in relation to the body of the invention.

10 Figure 6 is a side elevation exploded view of the front portion of the present invention showing the method of construction of the pre-load bar attachment socket.

15 Figure 7 is a rear elevation view of the present invention showing the orientation of the 90 degree keel in relation to the body of the invention.

Figure 8 is a perspective view of the saddle portion of the present invention showing the manner in which the ski attachment bolt and pre-load bar attach to the ski.

20 Figure 9 is an exploded view of the ski saddle component of the present invention detailing the manner in which the ski mounting bolt attaches to the vertical portions of the "one piece ski."

Figure 10 is a bottom elevation view of the present invention showing it as configured with a narrow ski body which

does not employ the use of the directional control veins in its lower surface.

Figure 11 is a bottom elevation view of the present invention showing it as configured with a wide ski body which
5 does allow for the use of a pair of directional control veins located in its lower surface.

Figure 12 is a front elevation cut-away view of the present invention showing it as configured with an extra wide ski body allowing for the use of two pairs of directional control veins
10 located in its lower surface.

DESCRIPTION OF THE PREFERRED EMBODIMENT:

Referring now to the drawings, and more specifically to Figures 1, 2, 3 and 4, the one piece molded snowmobile ski 10 is
15 made up of a ski body 12 which forms the majority of the invention and provides the base to which the other components are attached. The ski body 12 has ski edges 14 running laterally along the entire upper lengths and extending upwards which form a shallow depression in the center of the upper surface of the ski
20 body 12. At the longitudinal center of the ski body 12, this depression is filled in and raised above the upper most surface of the ski edges 14 to form the saddle mounting platform 34. On the upper surface of the saddle mounting platform 34 two projections called the saddle vertical mount plates 18 extend

upward and form the attachment point for the ski mount bolt 26 which facilitates the attachment of the present invention to a snowmobile.

The ski body 12, the saddle mounting platform 34, and the
5 ski saddle 16 are all formed from one piece of UHMW plastic in a manner so that the natural state of the present invention is flat along the entire length in regards to the upper surface of the ski body 12. This one piece construction provides a lightweight ski that is extremely strong and that is less expensive to
10 produce and sell than previous multiple piece snowmobile ski designs.

The pre-load function of the present invention is provided by bending the forward most portion of the ski body 12 at the pre-load zone 40, which narrows down to a point at its front tip
15 as in a standard ski, in an upward fashion. It is then held in this position by the use of the pre-load bar 20 which extends forward from the front of the ski saddle 16 to the tip of the ski body 12. At its rearward end, the pre-load bar 20 is attached to the saddle vertical mount plates 18 of the ski saddle 16 by the
20 use of the pre-load rear mount 21 which is a perpendicularly mounted cylindrical portion of the pre-load bar 20 having a hole formed longitudinally through its center. The forward most end of the pre-load bar 20 is attached to the front of the ski body 12 by the use of the pre-load bar front mount 38. The distance

between the rear and front mounts, 21 and 38, of the pre-load bar 20 is shorter than the distance between the rear mount 21 and front mount 38 located at the tip of the ski body 12, thus, the attachment of the pre-load bar 20 forces the ski tip to be held 5 in an upwardly curved position.

The variable pre-load bar mount holes 24 located on the front portion of the saddle vertical mount plates 18 provide a means of varying the amount of pre-load placed on the ski body 12 (the use of the variable pre-load bar mount holes 24 and the ski 10 mount bolt 26 are illustrated in Figure 8). The pre-load bar 20 is pivotally attached to the ski saddle 16 by passing the pre-load rear mount bolt 22 through one of the variable pre-load mount holes 24, through the pre-load rear mount 21 and out the opposite variable pre-load mount hole 24 where it is held in 15 place by the use of the mount bolt nut 23. Figure 8 also illustrates the manner in which the ski mount bolt 26 passes through the ski mount bolt holes 25, which contain the ski mount bolt bushings 29, located on the saddle vertical mount plates 18 to allow for the attachment of the present invention to 20 snowmobile.

The amount of pre-load placed on the ski body 12 is accomplished by changing the distance between the pre-load bar rear mount 21 and the pre-load bar front mount 38 and, therefore, the amount of pre-load placed on the tip of the ski body 12. For

example, if the pre-load bar rear mount 21 is mounted to the most forward of the variable pre-load mount holes 24, the amount of pre-load placed on the ski body 12 is relatively small, therefore, providing a softer ride that is the recommended setting for riders of lighter weights. Conversely, if the rear of the pre-load bar rear mount 21 is mounted to the most rearward of the variable pre-load mounting holes 24, the amount of pre-load placed on the ski body 12 is relatively large, therefore, providing a stiffer ride that is the recommended setting for 10 riders of heavier weight.

These adjustments can also be made to compensate for varying types of conditions and for the type of riding to be done. Therefore, the present invention provides a means by which the handling characteristics of the skis can varied to improve the efficiency of the vehicle. This is especially important in racing where different tracks present a varying set of problems that can be overcome by simply adjusting the skis.

The ski saddle 16 also provides the point, through the saddle vertical mount plates 18, at which the present invention is attached to the vehicle on which it is to be used. The mounting configuration is also detailed in Figure 9. This is accomplished by placing the ski cradle of a typical snowmobile between the two parallel saddle vertical mount plates 18 of the ski saddle 16 and passing the ski mount bolt 26 through the ski

mount bolt hole 25 (which contains the ski mount bolt bushing 29) one side of the ski saddle 16, through the ski cradle and out the other side of the ski saddle 16 where it is secured by the use of the ski mount nut 27 and washer 33. Since the method of
5 attaching snowmobile skis needs to be universal, the ski mount bolt bushings 29 come in a variety in inside diameters which allows the present invention to be attached to and used in conjunction with any of the many makes of snowmobiles on the market today.

10 The attachment of the pre-load bar 20 to the front tip of the ski body 12 is illustrated in Figure 6. The most forward portion of the upper surface of the ski body 12 is equipped with a concave depression called the mount socket 50. The most forward lower surface of the pre-load bar 20 is equipped with a corresponding convex surface called the mount ball 48. These two surfaces fit together and a mounting bolt is passed through the pre-load bar front mount hole 46 which is bored through corresponding locations in both the pre-load bar 20 and the ski body 12 tip.
15

20 The flat ski bottom 36 and the ninety degree keel features 32 of the present invention are illustrated in Figures 5 and 7. Both of these features run along the entire length of the ski body 12 and serve to provide the present invention with the floating action that is central to the invention. Additionally,

Figure 5 details how the pre-loading of the ski body 12 at the pre-load zone 40 creates a pre-load depression radius 41 at the front end of the ski body 12. The depression radius 41 is a result of the design of the ski body 12 in which the upper edges 5 of the body 12 are thicker than the center. As the ski body 12 is bent upward during pre-load, the center tends to bow slightly upward, in relation to the outside edges, which forms the depression radius 41. This funnels snow over the 90 degree keel as the ski body 12 moves over the snow which aids in the present 10 invention's tracking ability.

The general line of thinking in the design of the prior art was to build a snowmobile ski with a contoured bottom, much like the V-hull commonly employed in the design of boats. This design of ski tended to sink into the snow and it was this that provided 15 much of the steering mechanism for the snowmobile. The flat ski bottom 36 of the present invention floats on top of the snow which creates less drag and therefore, allows the snowmobile to operate at a higher degree of efficiency.

The tracking and steering impetus for the snowmobile is 20 provided by the ninety degree keel 32 which, as previously stated, runs along the entire length of the flat ski bottom 36 of the ski body 12. The ninety degree keel 32 is an approximately a one inch square portion of the one piece snowmobile ski 10 that extends downward from the flat ski bottom 36 along its center

line. When the ski body 12 is in contact with the surface of snow, the ninety degree keel 32 sinks down into the snow. Therefore, as the ski is turned by the operator, the ninety degree keel bites into the snow and directs the direction of 5 travel of the one piece ski 10 and the snowmobile.

Another feature of the present invention employed to enhance its steering and tracking characteristics is the use of carbide tipped runners mounted on the flat bottom 36 surface of the ski body 12 and the lower surface of the ninety degree keel 32. The 10 location, method of attachment and orientation of these runners is illustrated in figures 3, 4, 5 and 7. Typically, the present invention would be fitted with either one or three sets of these carbide runners. The largest of these is the center carbide 44 which extends for about half of the length of the ski body and is 15 mounted to the bottom surface of the ninety degree keel 32. The center carbide 44 is made up of a small triangular strip of extremely hard carbide steel which is permanently attached to the bottom surface of the center carbide mount 45 which is in turn attached to the ski body 12 by the use of a plurality of attached 20 center carbide mounting bolts 28 which extend upwards through the ski body 12 where they are held in place with series of nuts and washers.

The side carbides 42 and side carbide mounts 43 are similarly configured but are considerably shorter, about half

that of the center carbides 44, in length. Additionally, they are attached to the ski body 12 in much the same way as the center carbide 44 as the side carbides 42 also have mounting bolts 30 which extend up through the ski body 12 through the 5 mount holes 31 and are held in place with a series of nuts and washers. Again, this is a very flexible design feature of the present invention as it provides a means by which the carbides can be quickly removed or installed to compensate for varying conditions encountered by the user. It also enables a person to 10 comply with the rules of certain racing sanctioning bodies as many of these do not allow the use of one or more of these carbides.

Figures 10, 11 and 12 illustrate the variety of widths that the ski body 12 of the present invention comes in and the use of 15 the optional directional control veins 39. Figure 10 shows a narrow ski body 12 in a width of approximately five inches which may be too narrow to allow for the use of the directional control veins but still allows for the use of side carbides 43 when conditions and regulations allow for it. Figure 11 shows the ski 20 body 12 in a wider width which allows for the use of a pair of control veins 39 (angled depressions in the lower surface of the ski body 12) which aid in directional impetus for the present invention.

Figure 12 illustrates the ski body 12 in a still wider width

which allows for the use of two pairs of the control veins 39. This figure also further details the configuration and manner of construction of the control veins 39. The outer edges of these control veins 39 are cut at an inward angle although the vein 5 itself is typically a right angle section. It has been found that the inward angle seems to work best to form 10 degrees to 25 degrees.. The purpose of this angle is that when the skis of a snowmobile are turned to effectuate a turn, they tend to rotate slightly in the horizontal plane in the direction of the turn. 10 Thus, when the skies are fully turned the angle of the outer edge of the control veins 39 forms a ninety degree angle in relation to the surface of the snow which adds a greater degree of control to the turning snowmobile.

Although the present invention has been described in 15 considerable detail with reference to certain preferred versions thereof, other versions are possible. It should also be stated at this point that although this invention is described in the context of a snowmobile, this invention would be equally useful on airplane skis, BOMBARDIERS, SNO-SCOOTS, and other similar 20 vehicles. Therefore, the spirit and scope of the appended claims should not be limited to the description of the preferred versions contained herein.

What is claimed is:

1. A one piece base, adjustable flex ski for use on a vehicle,

said ski comprising:

a molded one piece flexible elongate ski having a front, middle and rear portion, and a top and bottom side;

said bottom side of said ski being molded substantially flat
5 except for a center keel portion, said keel portion forming a rectangular ridge with along the length of said ski;

a first connection means at the front portion of the ski;

a second connection means on the middle top portion of the
ski; and

10 a means of connecting said ski to said vehicle.

2. A one piece base adjustable flex ski as in claim 1 wherein said one piece flexible elongate ski further defines a one piece ski saddle having a left and right section extending upward from the middle portion on the top side of said ski.

15 3. A one piece base adjustable flex ski as in claim 2 wherein said second connection means comprises at least one set of holes formed by said left and right section of said ski saddle said holes being in alignment with each other.

4. A one piece base adjustable flex ski as in claim 3 further
20 comprising a pre-load bar have a front and rear end with said front end being pivotally connected to said first connection means at the front portion of the ski, and said pre-load bar being pivotally connected at said rear end to said second connection means so as to place a pre-load on said adjustable

flex ski.

5. A one piece base, adjustable flex ski as in claim 4 wherein said ski further comprises a directional control means on the bottom of said ski.

5 6 A one piece base adjustable flex ski as in claim 5 wherein said directional control means is at least one section of carbide runner.

7. A one piece base adjustable flex ski as in claim 5 wherein said directional control means is at least one pair of veins
10 formed in the bottom portion of said ski.

8. A one piece base adjustable flex ski as in claim 4 wherein said ski is molded from an Ultra High Molecular Weight plastic.

9. A one piece base ski for use on a vehicle, said ski comprising:

15 a molded one piece flexible elongate ski having a front, middle and rear portion, and a top and bottom side;

said bottom side of said ski being molded substantially flat except for a center keel portion having right angle corners, said keel portion forming a rectangular ridge with along the length of
20 said ski;

a first connection means at the front portion of the ski;

a second connection means on the middle top portion of the ski; and

a means of connecting said ski to said vehicle.

10. A one piece base ski as in claim 9 wherein said one piece flexible elongate ski further defines a one piece ski saddle having a left and right section extending upward from the middle portion on the top side of said ski.

5 11. A one piece base ski as in claim 10 wherein said second connection means comprises at least one set of holes formed by said left and right section of said ski saddle said holes being in alignment with each other.

10 12. A one piece base ski as in claim 11 further comprising a pre-load bar have a front and rear end with said front end being pivotally connected to said first connection means at the front portion of the ski, and said pre-load bar being pivotally connected at said rear end to said second connection means so as to place a pre-load on said adjustable flex ski and further cause 15 a pre-load depression radius on the front portion of said ski.

13. A one piece base ski as in claim 12 wherein said ski further comprises a directional control means on the bottom of said ski.

14. A one piece base ski as in claim 13 wherein said directional control means is at least one section of carbide runner.

20 15. A one piece base ski as in claim 13 wherein said directional control means is at least one pair of veins formed in the bottom portion of said ski.

16. A one piece base ski as in claim 12 wherein said ski is molded from an Ultra High Molecular Weight plastic.

ABSTRACT:

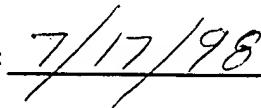
A flexible ski which is molded in one piece entirely of UHMW plastic. The adjustable flex ski is made up of a ski body which forms the majority of the invention and provides the base from 5 which the other components are formed. This ski body is molded in a flat configuration. The front portion of this ski is given a pre-load function by bending the forward most portion of the ski body in an upward fashion. It is then held in this position by the use of pre-load bar which extends pivotally rearward from 10 the tip of the ski to a ski saddle located on the upper center surface of the ski body. This saddle provides various attachment points for the pre-load bar and can thus, vary the amount of pre-load on ski. The saddle is also supplied with an attachment point for mounting the ski on the vehicle. This configuration 15 allows the tip of the adjustable flex ski to flex in an upwardly fashion when confronting obstacles which provides the operator with a greater degree of control in rough terrain.

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INVENTOR:


Dale DeWayne Cormican

DATE:


7/17/98

NUMBERS:

- 10. One Piece Molded Snowmobile Ski
- 12. Ski Body
- 5 14. Ski Edge
- 16. One Piece Ski Saddle
- 18. Saddle Vertical Mount Plates
- 20. Pre-load Bar
- 21. Pre-load Rear Mount
- 10 22. Pre-load Rear Mount Bolt
- 23. Mount Bolt Nut
- 24. Variable Pre-load Bar Mount Holes
- 25. Ski Mount Bolt Hole
- 26. Ski Mount Bolt
- 15 27. Ski Mount Bolt Nut
- 28. Center Carbide Mounting Bolts
- 29. Ski Mount Bolt Bushing
- 30. Side Carbide Mounting Bolts
- 31. Side Carbide Mount Holes
- 20 32. 90 Degree Keel
- 33. Washer
- 34. Saddle Mounting Platform
- 36. Flat Ski Bottom
- 38. Pre-load Bar Front Mount
- 25 39. Control Veins
- 40. Ski Pre-load Zone
- 41. Pre-Load Depression Radius
- 42. Side Carbides
- 43. Side Carbide Mounts
- 30 44. Center Carbide
- 45. Center Carbide Mounts
- 46. Pre-load Bar Front Mount Hole
- 48. Mount Ball
- 50. Mount Socket

**VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) & 1.27(b)--INDEPENDENT INVENTOR**

Docket Number (Optional)
CORM-002

Applicant or Patentee: **Mr. Dale DeWayne Cormican**
Serial or Patent No.:

Filed or Issued: **HEREWITH**

Title: **ONE PIECE MOLDED SKI APPARATUS**

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

- the specification filed herewith with title as listed above.
- the application identified above.
- the patent identified above.

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant convey or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- No such person, concern, or organization exists.
- Each such person, concern or organization is listed below.

Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Dale DeWayne Cormican, INVENTOR
Route, 1 Box 153
Mentor, MN 56736


Signature of Inventor


Date

POWER OF ATTORNEY

Dale DeWayne Cormican owner of the application for United States Letters Patent for an improvement in a *One Piece Molded Ski Apparatus*, by, Mr. Dale DeWayne Cormican executed on even date herewith does hereby appoint as attorney of record with full power of substitution and revocation, to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

Curtis V. Harr, Reg. No. 37,844



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I, the undersigned, declare that I am the owner of the above-identified application or if the owner is a corporation, partnership or other association, I am authorized to make this appointment on behalf of the owner and I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.


Mr. Dale DeWayne Cormican
Route 1, Box 153
Mentor, MN 56736

Date 7/17/98

Docket Number (Optional)
CORM-002

DECLARATION FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled **ONE PIECE MOLDED SKI APPARATUS**, the specification of which is attached hereto unless the following box is checked:

was filed on _____ as United States Application Number or PCT International Application Number _____ and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR, § 1.56.

I hereby claim foreign priority benefits under 35, U.S.C. § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

Priority Not Claimed

(Number)	(Country)	(Day/Month/Year Filed)	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	<input type="checkbox"/>

I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below.

(Application Number)	(Filing Date)
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(Application Number)	(Filing Date)
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I hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

(Filing Date)	(Status – patented, pending, abandoned)	(Application Number)
(Filing Date)	(Status – patented, pending, abandoned)	(Application Number)

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Curtis V. Harr, Reg. No. 37, 844

Address all telephone calls to	Curtis V. Harr	at telephone number	(701) 298-3001
Address all correspondence to	Curtis V. Harr P. O. Box 2842 Fargo, ND 58108-2842	fax number	(701) 298-3002

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor (given name, family name): DALE DeWAYNE CORMICAN

Inventor's signature Dale DeWayne Cormican Date: 7/17/98

Residence: MENTOR, MINNESOTA Citizenship: US

Post Office Address: Route 1, Box 153, Mentor, MN 56736

Full name of second joint inventor, if any (given name, family name):

Second Inventor's signature _____ Date: _____

Residence:

Citizenship:

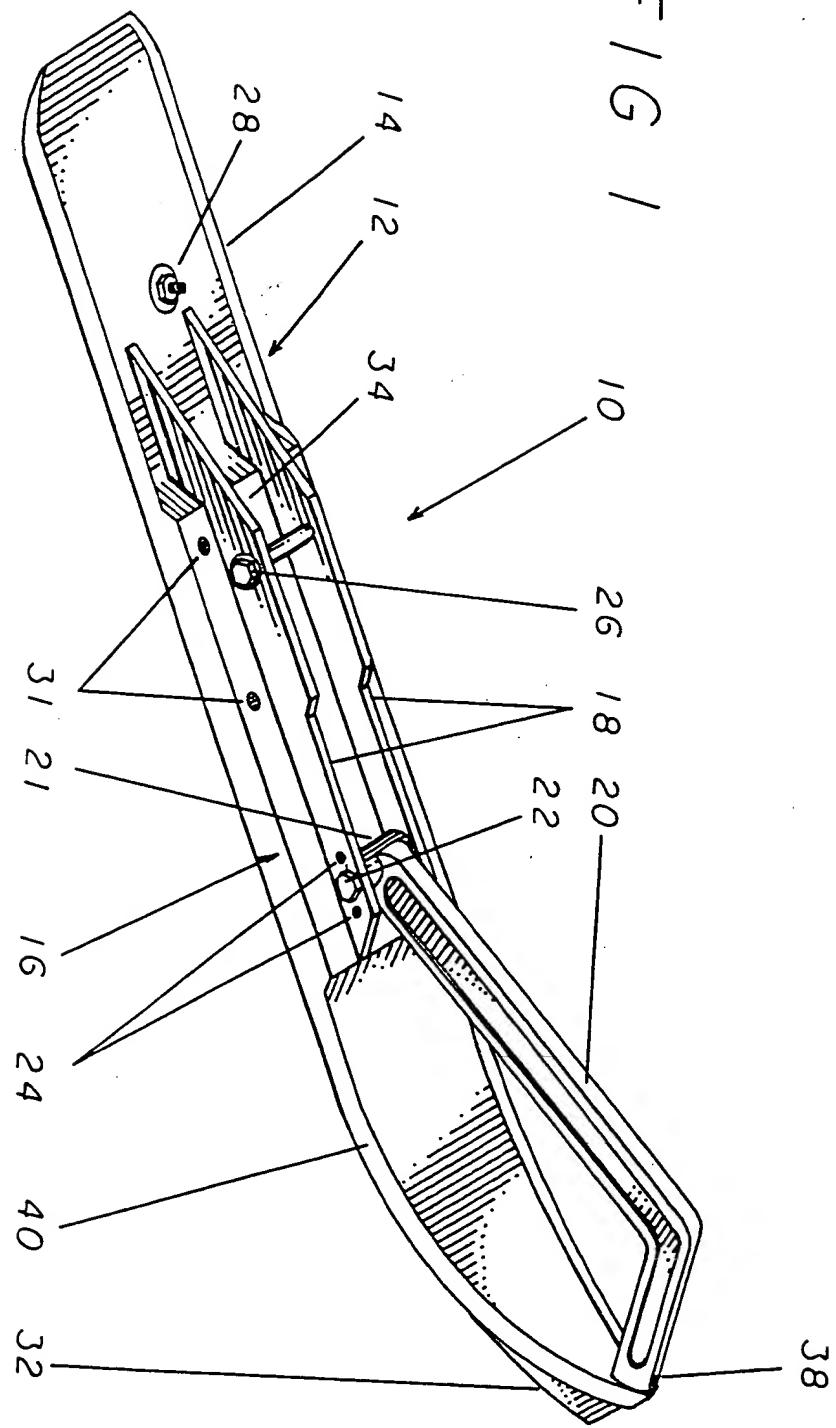
Post Office Address:

Additional inventors are being named on separately numbered sheets attached hereto.

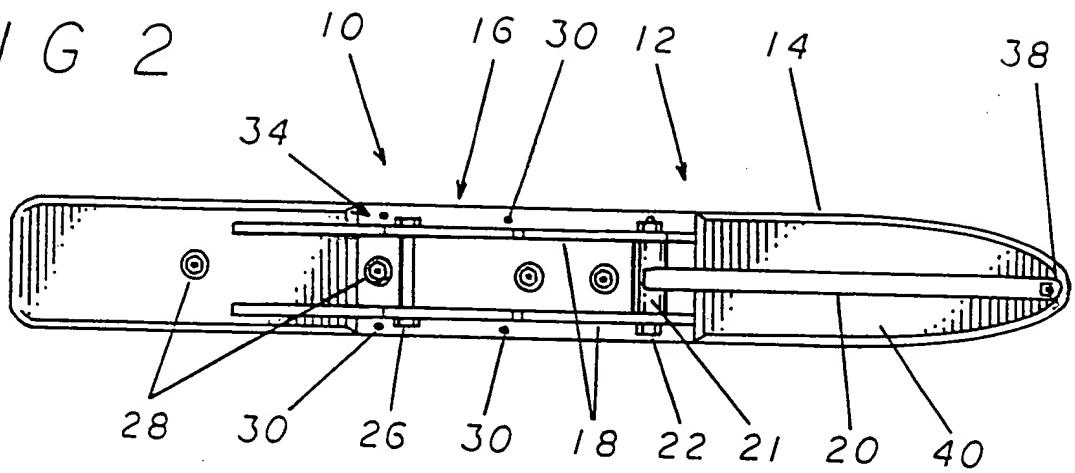
NUMBERS:

- 10. One Piece Molded Snowmobile Ski
- 12. Ski Body
- 5 14. Ski Edge
- 16. One Piece Ski Saddle
- 18. Saddle Vertical Mount Plates
- 20. Pre-load Bar
- 10 21. Pre-load Rear Mount
- 22. Pre-load Rear Mount Bolt
- 23. Mount Bolt Nut
- 24. Variable Pre-load Bar Mount Holes
- 25. Ski Mount Bolt Hole
- 26. Ski Mount Bolt
- 15 27. Ski Mount Bolt Nut
- 28. Center Carbide Mounting Bolts
- 29. Ski Mount Bolt Bushing
- 30. Side Carbide Mounting Bolts
- 31. Side Carbide Mount Holes
- 20 32. 90 Degree Keel
- 33. Washer
- 34. Saddle Mounting Platform
- 36. Flat Ski Bottom
- 38. Pre-load Bar Front Mount
- 25 39. Control Veins
- 40. Ski Pre-load Zone
- 41. Pre-Load Depression Radius
- 42. Side Carbides
- 43. Side Carbide Mounts
- 30 44. Center Carbide
- 45. Center Carbide Mounts
- 46. Pre-load Bar Front Mount Hole
- 48. Mount Ball
- 50. Mount Socket

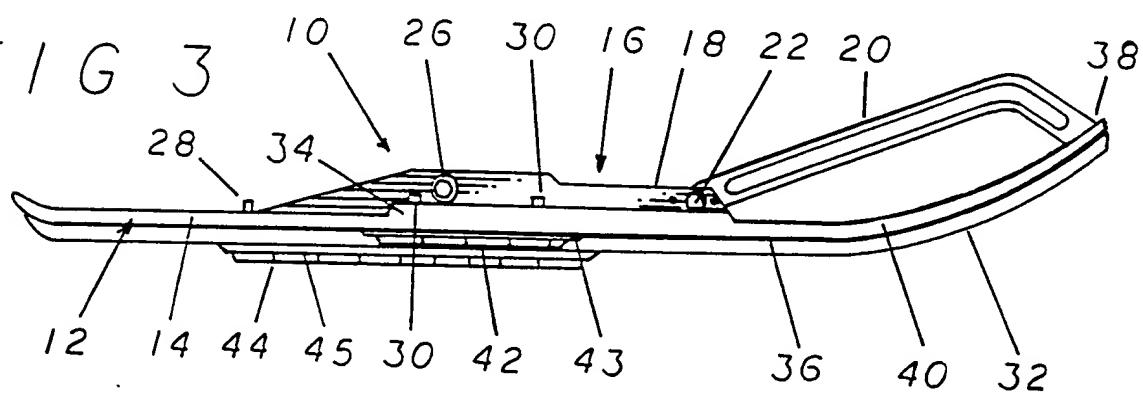
F / G



F I G 2



F I G 3



F I G 4

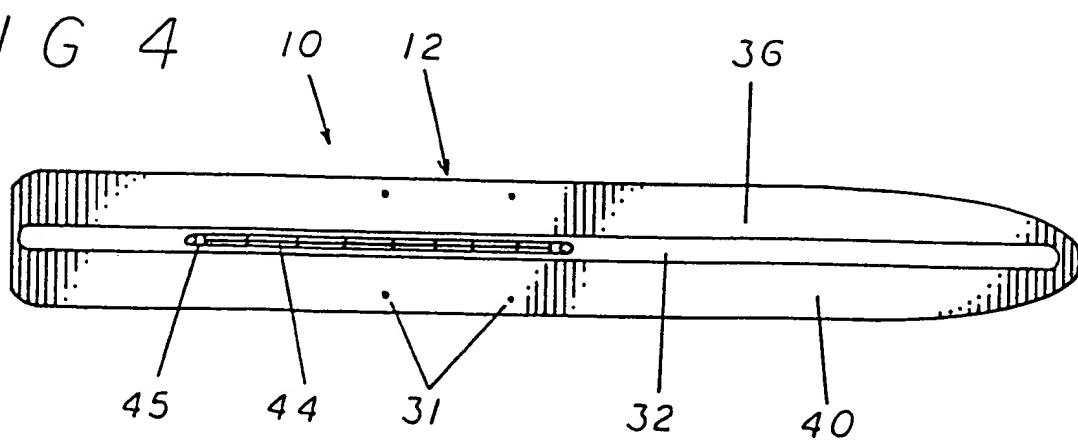


FIG 5

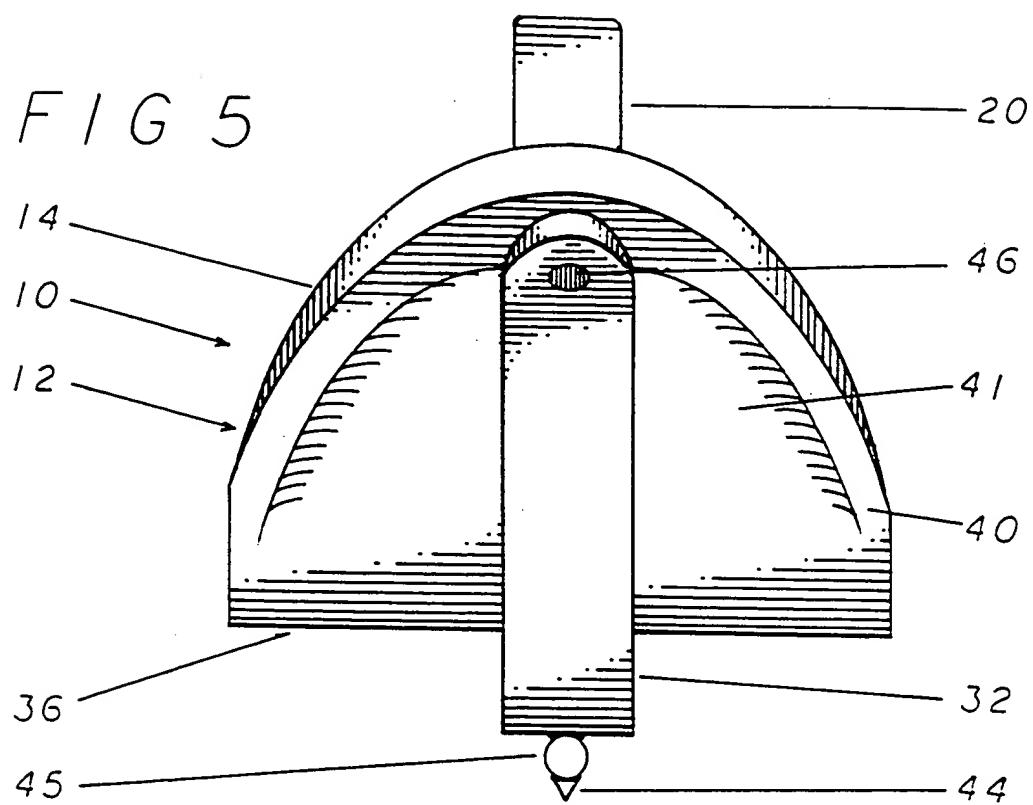


FIG 6

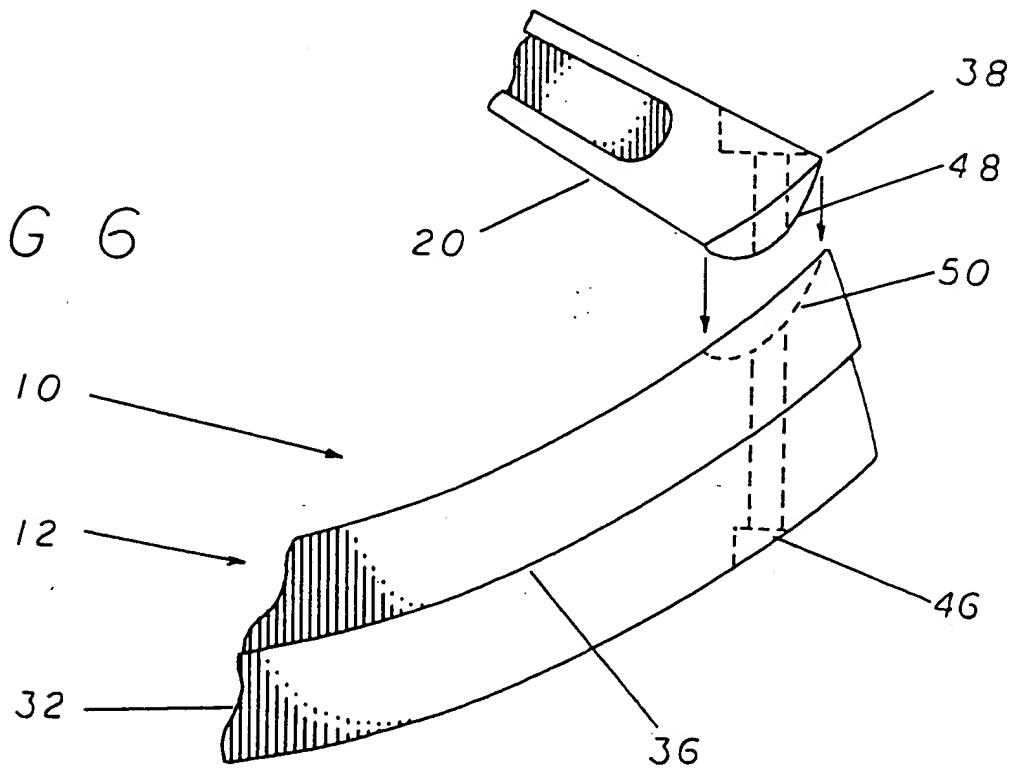


FIG 7

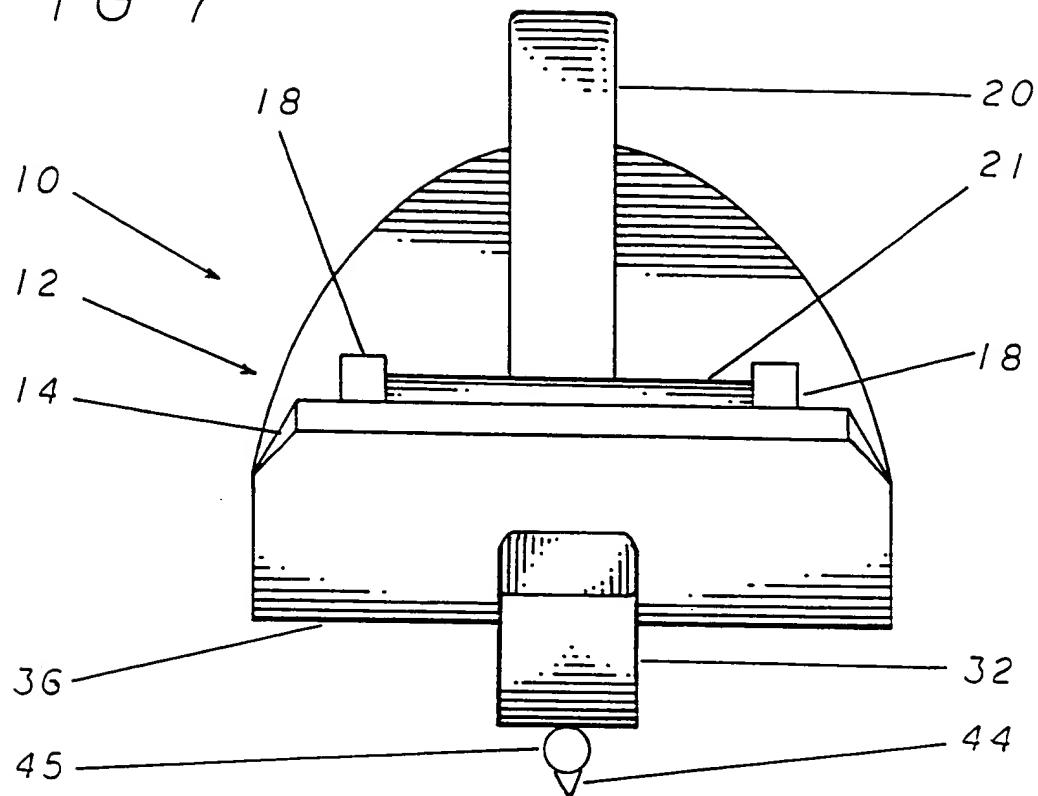
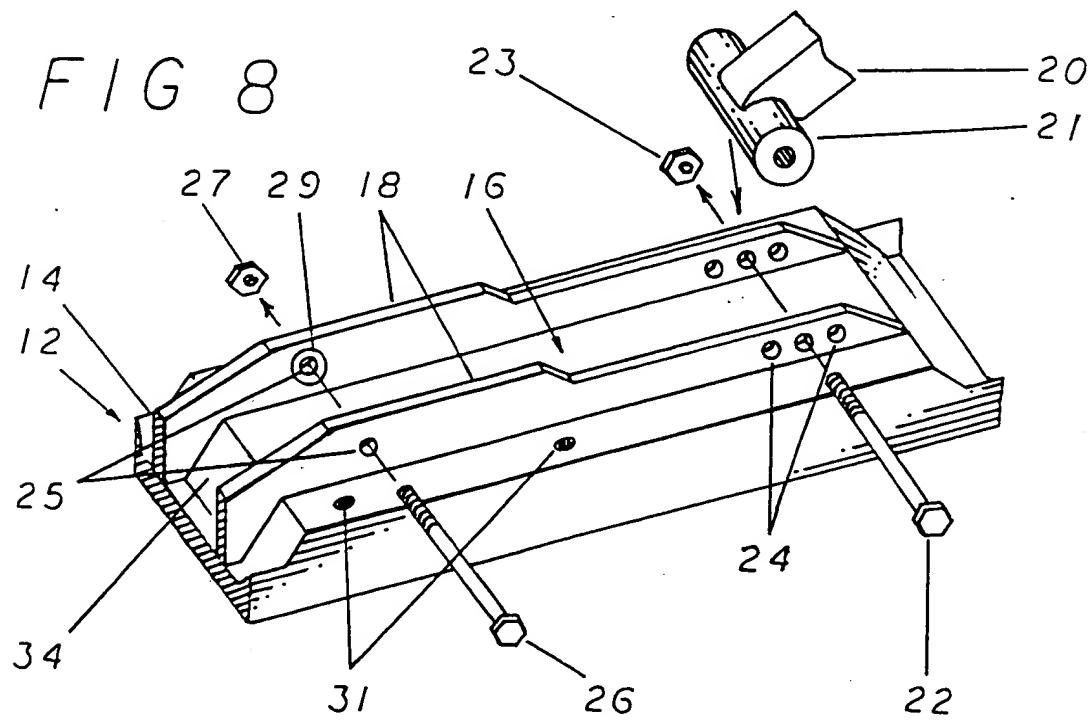


FIG 8



F / G 9

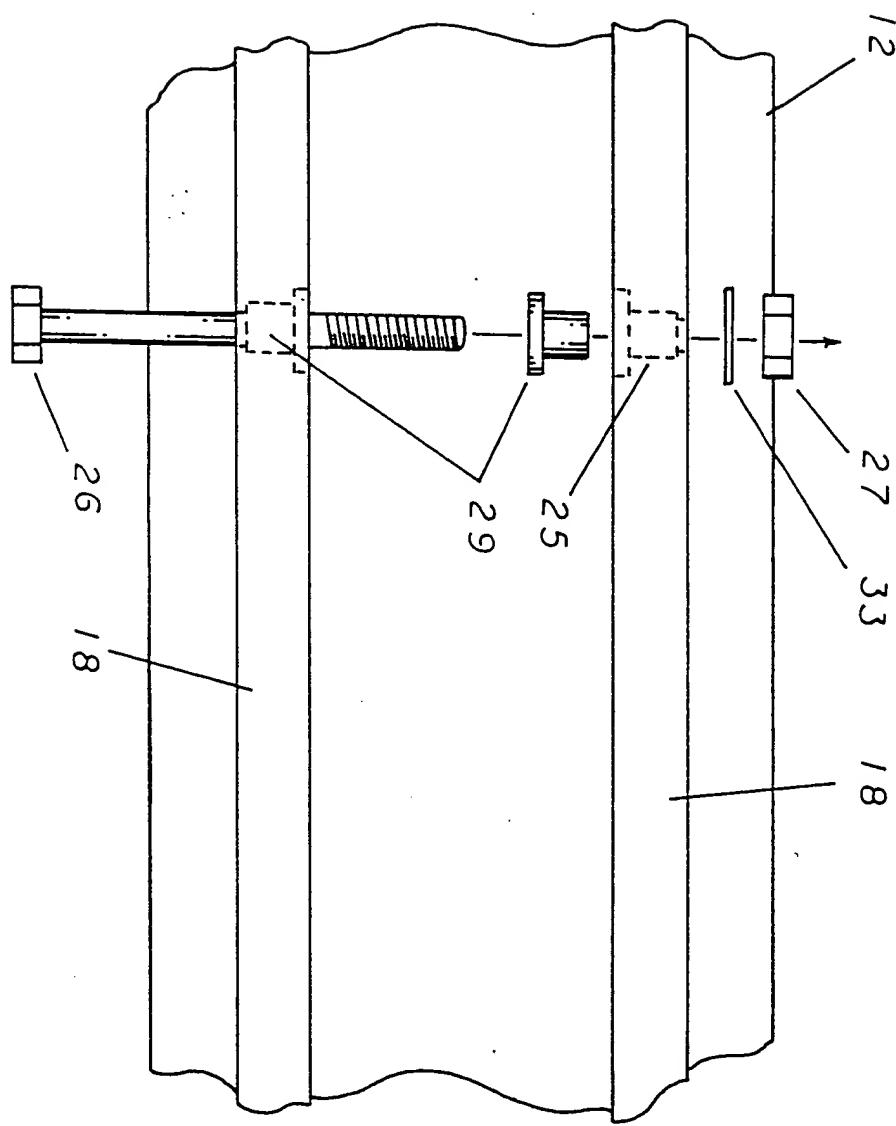


FIG 10

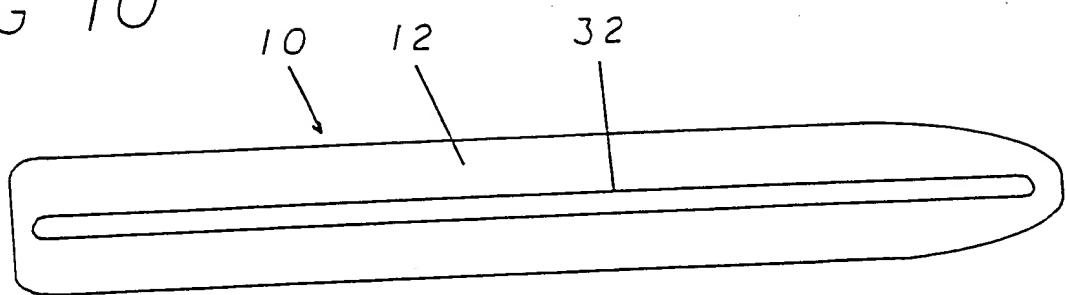


FIG 11

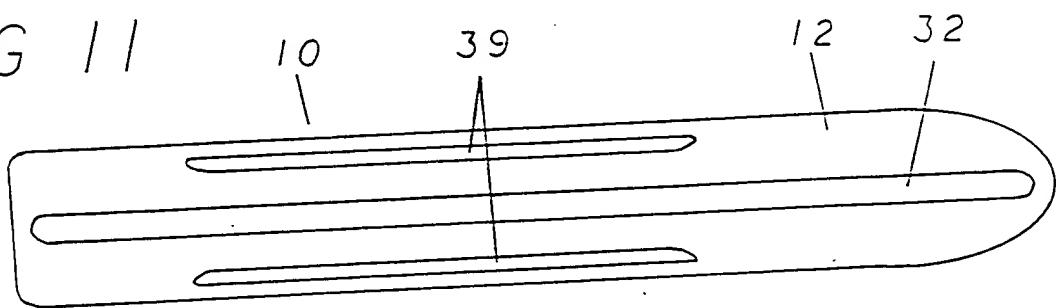


FIG 12

